ATR
Atlantic Test Ranges

Automated Communications Test System (ACTS)

A fully automated open-air range C3I simulation transmission system

The ACTS facility provides a vital test resource for RDT&E and fleet training and exercise support. ACTS provides test signals to stimulate threat warning receivers, RF direction finding systems and jammer systems aboard airborne platforms. The frequency range of ACTS is 2 MHz to 2 GHz. An extensive antenna farm is located adjacent to this facility which contains omnidirectional and directional antennas which have unobstructed electromagnetic propagation paths over the Chesapeake Bay. The ACTS facility is part of the Atlantic Test Ranges (ATR), which provides radar tracking and aircraft controller support.

The ACTS facility uses fully programmable signal generators, 100W to 1,000W amplifiers, and highly accurate power meters to provide multiple test signals with accurate ERP. The ACTS is conveniently collocated with the other open-air range Electronic Warfare emitter facilities at ATR to provide full-spectrum emitter test signals from 2 MHz to 18 GHz.

The ACTS facility is uniquely located on the western shore of the Chesapeake Bay at NAS Patuxent River, with local access to both littoral and blue water restricted operations areas. The warning areas provide an off-shore flight environment, which includes the land-sea interface that would simulate many missions.

Additionally, the Chesapeake Bay provides a calm body of water to serve as a reflection surface for RF energy. The calmness of the Bay allows accurate characterization of the reflecting multipath electromagnetic energy. As a result, the multipath effect is used to determine optimal antenna heights for mission scenarios.

The ATR Special Signals Facility

for more information

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NAVAIR RANGES
Leaders in providing decision-quality data

January 2009

NAVAIR Public Release #09-153
Approved for public release; distribution unlimited

Automated Communications Test System (ACTS)

ACTS Emitters

Frequency coverage: 2 MHz - 2 GHz

Transmitter types

- AM, FM, CW & Pulse
- FSK, PSK, QAM, QPSK & SSB
- CDMA 2000, EDGE, GSM, IS 136, IS 95, Tone Comb, PM Tone Comb, WCDMA
- Text messages via Morse Code, DTMF, FSK or PSK
- 100W & 500W Amplifiers
- 1000W HF transceiver equipped with ALE

Transmitter density

- Up to 16 simultaneous emitters
- High-speed switching:
  - One frequency per second for 10 seconds
  - Four transmitters (each offset by ¼ second)
  - 40 total frequencies in each 10-second period
  - GPS-time synchronized

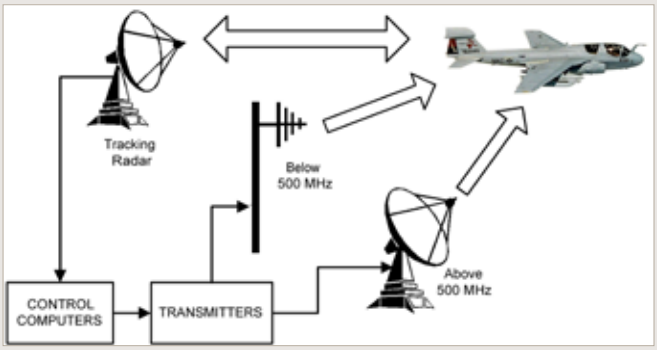
Tests & Programs

Programs Supported

- EA18G Growler
- EA-6B ICAP II, III & USQ-113
- EP-3 & P-3 Special Projects
- Army Aerial Reconnaissance Low-Multifunction (ARL-M, aka Superhawk)
- Fleet VP Training & JNTC Exercises
- British NIMROD
- BAC 1-11

Types of Tests

- Antenna Calibration
- Calibration Verification
- Direction of Arrival
- Jammer Response Time
- Battlefield Simulation
- Fleet Exercise Support



ACTS Antennas

HF Antennas

- 2 Horizontal Log-Periodics, 3 - 30 MHz
- 1 Vertical Conical Monopole, 2 - 30 MHz
- 1 Vertical Inverted Cone Antenna, 3.8 - 32 MHz
- 1 Vertical 75-ft. Whip Antenna, 2 - 30 MHz

VHF/UHF Antennas

- 4 Horizontal Log-Periodics, 30 - 1000 MHz
- 4 Log-Periodics, 80 - 1000 MHz - Horizontal or Vertical Polarization
- 2 Vertical Whips, 20 - 120 MHz
- 2 Vertical Whips, 30 - 400 MHz
- 1 Dual-Polarized 10-ft. Dish, 500 MHz - 2 GHz

Eight telescoping antenna masts with positioners provide:

- Height adjustment of antennas to minimize multipath
- Slaving of antennas to aircraft
- Automated adjustment between vertical and horizontal polarizations